Healthcare Associated Infections

Methicillin-resistant *Staphylococcus Aureus* (MRSA) Bacteraemias

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**Contributors:**

Drafted by: CEC eChartbook team and CEC Governance and Assurance Directorate

Data analysis by: CEC eChartbook team

Reviewed by: CEC Governance and Assurance Directorate

Edited by: CEC eChartbook team

**Any enquiries or comments about this publication should be directed to:**

André Jenkins, Director, Information Management

Clinical Excellence Commission, Locked Bag 8, Haymarket NSW 1240

Phone: (02) 9269 5500 Email: CEC-eChartbook@health.nsw.gov.au

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HEALTHCARE ASSOCIATED INFECTIONS
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Why is this important? Healthcare associated infections (HAI) are a leading cause of preventable illness and death [1-5]. Among the pathogens that cause HAI, meticillin-resistant Staphylococcus aureus (MRSA) causing bacteraemia is a key target for reduction efforts. MRSA remains a pathogen that continues to cause morbidity and mortality in healthcare settings, particularly among patients in intensive care units [4, 6-7]. The epidemiology of MRSA is complex, but the main vehicle of transmission in healthcare settings is likely to be contact transmission between patients, staff and visitors [8].

In Australia, MRSA bacteraemias cause up to 40 per cent of all healthcare-acquired Staphylococcus aureus (S. aureus) bacteraemia [9]. MRSA bacteraemias are associated with increased risk of mortality [10] and contribute a considerable cost to the healthcare system due to the need for prolonged hospital stays, re-admissions and additional diagnostic tests and treatment [11]. National reporting of healthcare acquired S. aureus bacteraemias, including those caused by MRSA, was introduced in Australia in 2008. MRSA bacteraemia incidences and rates also are a key performance indicator for jurisdictions under the National Healthcare Agreement [12]. This section reports 'inpatient' and 'non-inpatient' healthcare-acquired MRSA bacteraemias data.

The HAI Program addresses the Australian Commission on Safety and Quality in Health Care’s National Safety and Quality Health Service (NSQHS) Standards [13]:
3.1 – 3.4 Clinical governance and quality improvement to prevent and control healthcare-associated infections, and support antimicrobial stewardship;
3.5 – 3.12 Infection prevention and control systems;
3.15 – 3.16 Antimicrobial stewardship;

Findings: The annual rate of MRSA bacteraemias in NSW has declined from 0.36 in 2011 to 0.17 per 10,000 occupied bed days in 2017 (233 and 124 infections recorded respectively) (Chart MR01).

Implications: In recent years, rates of MRSA bacteraemia have fallen because of improved hand hygiene, infection prevention and control practices. The prevention of MRSA bacteraemia, however, still remains a priority for NSW Health.

What we don’t know: S. aureus is a normal human commensal that can also behave as a versatile and virulent pathogen [14]. Treatment of MRSA bacteraemias is becoming increasingly difficult, because of the growing prevalence of multi-drug resistant strains [15]. Underlying patient factors are important in determining the likelihood of pathogen transmission and complicated bacteraemia and require further investigation beyond the data presented here.

The analysis of infection data by; its origin whether it is hospital- or community-acquired, hospital peer group classification, or a change in severity stages during hospital admission may shed some light on the MRSA transmission process.

References:


Chart MR01 - Methicillin-resistant *Staphylococcus aureus* (MRSA) Bacteraemia

MRSA bacteraemias per 10,000 occupied bed days (public hospitals only), NSW, Jan 2012- Jun 2018

Source: NSW Ministry of Health, Clinical Excellence Commission
# Data Definitions

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<th>Chart:</th>
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<td>Admin Status:</td>
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<tr>
<td>Indicator Name:</td>
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<tr>
<td>Description:</td>
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<td>Dimension:</td>
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<td>Clinical Area:</td>
<td>Initiatives in safety and quality health care</td>
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<td>All methicillin-resistant <em>Staphylococcus aureus</em> (MRSA) bacteraemias (including inpatient &amp; non-inpatient)</td>
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<td>Data Exclusions:</td>
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<tr>
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<td>Denominator:</td>
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<td>MRSA comprises infections recorded in two clinical indicators (Clinical indicator 2.2 Healthcare associated (inpatient) MRSA BSIs per 10,000 occupied bed days and Clinical indicator 2.4 Healthcare associated (non-inpatient) MRSA BSIs per 10,000 occupied bed days).</td>
</tr>
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